

# Kelly Facts

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## Site MP

### Metal plating shop a source of groundwater contamination

It may not look like much today, but decades ago what is now a parking lot was bustling with action as the site of a former metal plating shop. As with many aircraft maintenance operations, this activity used solvents to clean aircraft parts. These solvents were held in large degreasing vats located in the shop. Unfortunately, some of these vats leaked, allowing solvents to flow into the ground. These solvents eventually reached the underground water (about 25 feet under ground). Once in the water, some of the solvents were dissolved and carried away. What did not dissolve sank to the bottom of the shallow aquifer and gathered in pools on a layer of clay about 40 feet underground.

These pools of solvent still exist today and are the primary sources of shallow groundwater contamination east of the base.

While the contamination has not affected the drinking water supply and poses no immediate threat to people living and working in the area, the Air Force is committed to cleaning up both the source of the contamination on base and the area of contaminated groundwater off base.

The Air Force began investigating Site MP in 1990 as part of the Zone 3 Remedial Investigation. The investigation found elevated levels of solvents and metals in the groundwater near the site of a former metal plating shop. The source of the contamination was believed to be leaking industrial waste lines. In response, the Air Force initiated an interim cleanup action along the base boundary. A



#### Zone 3, Site MP

Site MP is the former location of a metal plating shop. The shop operated from the 1940s to 1981.

system of five groundwater extraction wells was installed to intercept the contaminated groundwater before it could leave the base. That system began operations in 1995 and was replaced with a more efficient system in 1998.

In 1995, engineers began designing an off-base treatment system. During the investigations that preceded the design, scientists discovered the source of the contamination was not the industrial waste lines, but residual solvents beneath site. Left unchecked, this would continue to be a major source of groundwater contamination.

After careful study, engineers decided that the immediate focus of any future action should be on the source area. Once the source area was contained, engineers would then focus on cleaning up the off-base areas.

#### In short

Site MP, the location of a former metal plating shop, is a source of groundwater contamination at Kelly AFB. Efforts are currently underway to prevent contaminants from leaving the base. These include extraction wells at the base boundary and an underground slurry wall surrounding the source area.

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The first step was to upgrade the interim system. Field tests showed the interim system was not able to capture all of the contaminated water coming from Site MP. Engineers proposed that new wells be installed to replace the old system. After a careful survey of the area's geology, four new wells were installed in February 1998.

A second action, which will be installed in April 1999, will consist of installing a slurry wall barrier around the source area. This will cut off the area of contamination from the flow of groundwater, preventing any additional contamination from leaving the site. In addition, extraction wells will be used to remove as much as possible of the pool of residual solvent underground. The Air Force hopes to have the system completed by early June 1999.

The Air Force is currently evaluating future

## Contaminants of Concern at Site MP

### Soil

**Tetrachloroethene (PCE):** A degreasing solvent

**Trichloroethene (TCE):** A degreasing solvent

**Dichloroethene (DCE):** A degradation product of TCE and PCE

### Groundwater

**Tetrachloroethene (PCE):** A degreasing solvent

**Trichloroethene (TCE):** A degreasing solvent

**Dichloroethene (DCE):** A degradation product of TCE and PCE

**Vinyl Chloride:** A degradation product of DCE

plans for cleaning up the remainder of Site MP. That plan is scheduled to be presented for public review and comment in August 2001.

## The Metal Plating Shop

Metal plating shops have been a mainstay at aircraft maintenance facilities for decades.

Plating operations were critical during World War II, the Korean Conflict and the Vietnam War. The shops that operated where Site MP is today, mostly plated aircraft propellers and, later, jet engine turbine blades.

The reason for metal plating is simple: corrosion. Metal parts, especially those made of steel, rust easily when exposed to the elements. Metal plating is the process by which metal parts are coated with a thin layer of another metal. This coating protects the part from water and air, which are the main things that cause corrosion.

Metal plating, while still important today, was even more important in past decades. This is because most aircraft parts were made of steel. Steel, while very strong, is prone to rust easily. By coating the steel with another metal, such as chromium or cadmium, parts would last longer and work more reliably because they would not rust as easily.

One of the most important steps in the plating process is cleaning the part. Workers used strong chemical degreasers, such as perchloroethylene (tetrachloroethene, or PCE) to remove the grease from the parts.



This concrete pit in Bldg. 258, shown here in the closing phases of construction some time in the early 1940s, held a series of smaller metal tanks for the nickel plating line. The first tank held solvents for cleaning aircraft parts.

The large concrete vault, shown above, housed multiple smaller vats, in which aircraft parts were dipped. The parts were moved from vat to vat along a trolley located in Bldg. 258. The degreaser vats containing the solvents were always the first pit in the processing line.

During the plating shop's operational life (the 1940s to 1981), solvents apparently leaked out of the vats, contaminating the soil and groundwater.